Huntleigh
HEALTHCARE

# Flowtron® DVT
# Service Manual

F048

Issue 3
Mar 2003

## Revision Record

All revisions incorporated in this copy of the manual must be recorded below.

| Section | Page No. | Issue | CN | Inserted By | Section | Page No. | Issue | CN | Inserted By |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

## Preface

Review this manual before attempting to service or repair the equipment.

This manual is intended to be used only by Huntleigh Healthcare trained service technicians. In the event that the manual is provided to a customer in response to customer requirements, the customer is advised not to attempt repairs and to direct any required service to Huntleigh trained service technicians. In no event will Huntleigh be responsible for any service performed by customers or third parties.

## Warnings, Cautions and Notes

**WARNINGS** given in this manual identify possible hazards in procedures or conditions which, if not followed correctly, could result in loss of life or severe personal injury.

**CAUTIONS** given in this manual identify procedures or conditions which, if not followed correctly, could result in equipment damage.

**NOTES** given in this manual are used to explain or amplify a procedure or condition.

## General Warnings

WARNING

Before performing any service or maintenance procedures, ensure that the equipment has been adequately decontaminated.

Voltages in excess of 30 Vrms or 50 Vdc can be lethal, in certain circumstances. When working on equipment requiring exposure to live unprotected conductors, where such voltages are present, extreme care must be exercised.

## Contents


**INTRODUCTION . . . . . 1-1**

How To Use This Manual . . . . . 1-1

Technical Description . . . . . 1-2

Servicing Protocol . . . . . 1-3

**OPERATIONAL MAINTENANCE . . . . . 2-1**

Routine Checks . . . . . 2-1

**TROUBLESHOOTING . . . . . 1-1**

Preliminary Checks . . . . . 1-1

Further Checks . . . . . 1-1

**PREVENTIVE MAINTENANCE . . . . . 4-1**

Pump Unit . . . . . 4-1

**SERVICING THE PUMP . . . . . 5-1**

Dismantling the Pump Unit . . . . . 5-1

Replacing the Alarm Light LED . . . . . 5-1

Replacing the Audible Alarm . . . . . 5-2

Replacing the On/Off Switch . . . . . 5-2

Replacing the Fuse Holder . . . . . 5-3

Replacing the Pressure Control Assembly . . . . . 5-4

Replacing the Alarm Module Assembly . . . . . 5-4

Replacing the Timer Motor/Gear Box Assembly . . . . . 5-5

Replacing the Electric Cord . . . . . 5-5

Replacing the Compressor Air Inlet Sponge Filter . . . . . 5-6

Replacing the Compressor Assembly . . . . . 5-6

Replacing the Compressor Assembly Components . . . . . 5-6

Test Equipment Requirements . . . . . 5-8

Test Instructions and Specifications . . . . . 5-8

**TECHNICAL SPECIFICATIONS . . . . . 6-1**

**APPENDIX A . . . . . A-1**

Wiring Diagram . . . . . A-1

Pneumatic Diagram . . . . . A-1

**APPENDIX B . . . . . B-1**

Parts List . . . . . B-1

# 1 INTRODUCTION

## 1.1 How To Use This Manual

This manual contains information for servicing the **Flowtron® DVT** system which consists of a pump, a pair of compression sleeves and a tubeset. The manual is partitioned with tabbed dividers for ease of use and consists of the following sections.

| | |
|---|---|
| Section 1 | **Introduction**: includes a general description of the operation of the system and a servicing protocol. |
| Section 2 | **Operational Maintenance:** describes both functional and static checks to ensure correct operation during the service life of the system. |
| Section 3 | **Troubleshooting:** contains details of fault symptoms, their possible causes and suggested steps to rectify the problem. |
| Section 4 | **Preventive Maintenance:** contains a list of parts which must be periodically replaced to ensure the correct operation of the system. |
| Section 5 | **Servicing the Pump:** contains illustrated procedures for replacing pump components, testing and calibration. |
| Section 6 | **Technical Specifications:** contains a list of technical data. |
| Appendix A | **Diagrams:** contains electrical wiring and pneumatic diagrams. |
| Appendix B | **Parts List:** a list of currently available spare parts. |

## 1.2 Technical Description

The **Flowtron®DVT** System has been specifically designed to provide prophylactic therapy for patients at risk of developing Deep Vein Thrombosis. For optimum results it is recommended that **Flowtron DVT** be applied pre-operatively and used continuously during the pre-, intra-, and post-operative periods.

**The system comprises :**

1. Pressure regulator pump Model AC500/2
2. Suitable patient garments from the **Flowtron DVT** range
3. L550 Tubeset with snaplock connectors

Pressure regulated pump unit AC500/2 to be used with L550 and **Flowtron DVT** garments only.

The pump inflates and deflates the garments on a one-minute cycle (approximately 12 seconds inflating, 48 seconds deflating). During the cycle, air is pumped to one outlet followed by the commencement of inflation at the second outlet approximately 30 seconds later.

The pump unit is piece of precision equipment, and provided that it is handled and serviced correctly (normally every 12 months), should give long and trouble free service.

Controls and indicators on the pump unit comprise:

a) Power switch (green rocker switch) illuminated when in the 'ON' position

b) Pressure control knob. Pressure adjustment between 20 mmHg and 60 mmHg

c) Red LED alarm indicator and audible signal indicates LOW and HIGH pressure faults

Note: *The* **Flowtron DVT** *pump is fitted with both audible and visual alarm indicators. When a fault occurs the audible alarm sounds and the LED illuminates.*

## 1.3 Servicing Protocol

### 1.3.1 General Service - Pump

Initial Assessment (Visual Check):

a) Enclosure for integrity and cleanliness of top and base

b) Fittings for damage and security

c) Labels are secure and legible

**Open Pump:**

d) Wiring and terminations are secure

e) Tubing security and integrity

f) Components fastenings are secure

g) General condition inside is clean

**Open Compressor:**

h) Silencer bag weld seams

i) Bellows/armature blade assembly condition

**General:**

j) Check electric cord assembly for security

k) Clean condition of pump.

If any items in a) - j) appear defective, replace with appropriate spare part and record action on service record sheet.

Re-assemble pump unit completely.

### 1.3.2 Testing

The following procedures should be carried out following any repair and as part of the routine service.

Perform electrical safety checks, pressure, flow and calibration checks and functional checks as given in Section 5.

Note: *It is important to ensure that all tools which are used in servicing are kept in good condition and test rigs for flow and pressure are regularly calibrated to a reference gauge with calibration directly traceable to the appropriate National Standards.*

# 2 OPERATIONAL MAINTENANCE

## 2.1 Routine Checks

These procedures should be performed each time the system is used.

### 2.1.1 Pump Unit

a) Inspect the pump unit for external damage to case, controls and connections etc.

b) Inspect the electrical cord for damage, cuts, abrasion, twisting, and replace if necessary.

c) Test all controls.

### 2.1.2 Garments

Check integrity of garments. Visually inspect for punctures, tears, damage to connections, fasteners, tubes.

### 2.1.3 Tubeset

Check tubing and connectors for damage and replace if necessary.

# 3 TROUBLESHOOTING

This section lists some of the problems which may occur after long periods of time, and outlines the way in which to correct them.

The **Flowtron DVT** System has an audible and a visual alarm.

When a fault condition occurs, the audible alarm sounds and the red LED illuminates.

The following checks should be performed by a trained Huntleigh Healthcare person.

## 3.1 Preliminary Checks

Check the following before dismantling the pump unit.

1. Verify that all tubing connections on pump and garment are securely fastened and in place.
2. If alarm still sounds, visually inspect tubing and garments for punctures or tears.

This eliminates possible garment and tubing faults.

## 3.2 Further Checks

If the alarm stays on it could indicate:

### 3.2.1 Low-pressure fault

Check position of pressure control knob.

The alarm will sound if the pressure in the garment does not reach 28 mmHg.

Adjust pressure control knob if necessary. Refer to Section 4.

### 3.2.2 Constant-pressure fault

Switch the pump OFF and remove garments.

A constant pressure fault condition occurs when the timer motor stops rotating (air not alternating). If this should occur, check integrity of the electrical connections of the timer motor. If connections are sound and the motor still does not rotate, the timer motor must be replaced.

### 3.2.3 Loss of air output pressure

If the garments do not inflate, check them for leaks and for the correct connection of tubesets.

If the leak check is satisfactory the pump unit internal compressor must be tested.

> WARNING
>
> Danger of electric shock. During the following tests live terminals and conductors will be exposed.

**Switch OFF pump unit and disconnect the supply cord from the power outlet.**

1. Remove unit lid as described in Section 5.
2. Disconnect the compressor outlet tubes from the 4-way connector and connect a Y-piece to the two tubes.
3. Connect a pressure gauge to Y-piece outlet.
4. Reconnect the power supply cord and switch on the pump.

The pressure reading should be at least 100 mmHg.

If the pressure does not reach 100 mmHg, disconnect the power supply again and remove the compressor lid. Remove the silencer bag from the valve bodies and connect the pressure gauge to each valve body in turn. The pressure reading should once again be approximately 100 mmHg.

If this pressure cannot be reached, the bellow/armature assemblies and valve bodies must be replaced. If 100 mmHg can be obtained, the silencer bag assembly must be replaced.

**Switch OFF the pump unit and disconnect the electric cord from the power outlet before performing any repair work.**

### 3.2.4 Checking the Pressure-Control Assembly

If the compressor is operating correctly and the correct pressure cannot be obtained at the pump outlets, the rotor/stator assembly and the pressure-control assembly must be checked:

1. Remove the timer motor/gearbox assembly as described in Section 5.
2. Compress the rotary-valve assembly and remove the drive pin.
3. Check the bearing surfaces for cracks or bad scores. Also check the security of the elbow connectors.
4. Remove the pressure-control assembly as described in Section 5.
5. Inspect the pressure control bags for leaks.

Any damaged parts must be replaced. It is recommended, in either case, that the complete assembly is replaced.

**Switch OFF the pump unit and disconnect the electric cord from the power outlet before performing any repair work.**

### 3.2.5 Loss of electrical power

Power loss can be due to the following:

1. No electricity supply at wall outlet
2. Faulty wall outlet
3. Damaged plug or electric cord
4. Defective fuse link
5. Damaged internal wiring

Evaluate each potential fault and correct as necessary.

### 3.2.6 Technical assistance

For technical assistance, contact:

Service Department
Huntleigh Healthcare Inc.
40 Christopher Way
Eatontown,
New Jersey 07724-3327

Telephone : 732 578 9898
Fax : 732 578 9889

# 4 PREVENTIVE MAINTENANCE

The following preventive maintenance should be performed every 12 months

## 4.1 Pump Unit

**Replace the following components:**

1. Silencer bag
2. Pivot points
3. Bellow arms
4. Valve bodies
5. Compressor sponge filter
6. Compressor gasket

**Check:**

a) Base is free from debris

b) Filter sponge position correct

c) Compressor seating

d) Electrical connections are secure and completely insulated

e) Pressure control knob is tight

f) Tubes are fully pushed on and are free from kinks

g) Tubes and electrical insulation are not damaged

h) Power switch illuminates

i) Wiring is tidy

j) Air is alternating

k) Outlet tubes and snaplock connectors are secure and fitted correctly

### 4.1.1 Testing

Test the pump as given in Section 5.

Caution

All servicing and repair work must be performed by a trained Huntleigh Healthcare trained service technician.

## 5.1 Dismantling the Pump Unit

Before dismantling the pump unit, ensure that it has been switched OFF and isolated from the power supply by removing the electrical cord plug from the wall outlet.

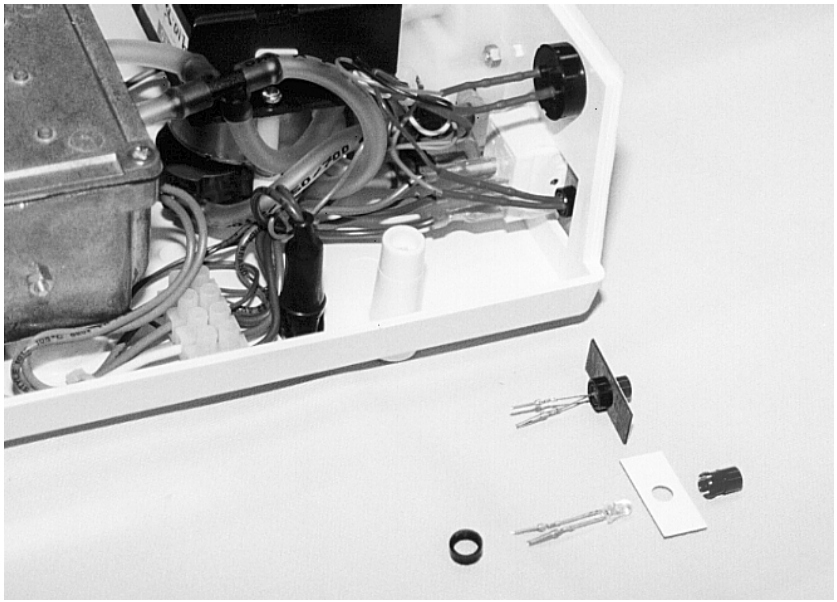
To remove the case lid, place the unit upside down on a flat, clean surface. Remove the rubber feet and unscrew the four self tapping screws.

Holding the unit in both hands, turn it onto its base and carefully remove the lid and place to one side.

Before the removal or replacement of the pressure control assembly, the face label must be removed. Carefully, peel the face label from the front panel and place to one side.

## 5.2 Replacing the Alarm Light LED

Carefully remove (cut OFF) insulation shrink sleeve from alarm indicator/alarm module connectors. Separate the pin/socket connectors. Pull OFF the black sleeve which retains the LED in the red lens. Be careful as the rectangular mounting plate is fragile. Push the red lens out through the mounting plate.



Fit a new red lens into the mounting plate from the front. Install the LED into the lens and push on a new retaining sleeve. Put new shrink sleeves onto the wires from the alarm module and connect the wires to the indicator by means of the pin/socket connectors. Slide the sleeves over the connectors and the LED wires and apply hot air to shrink in position.

The alarm light LED spare part (No. BP384) is supplied as a complete assembly which can be stripped down as described above to replace individual components as desired.

## 5.3 Replacing the Audible Alarm

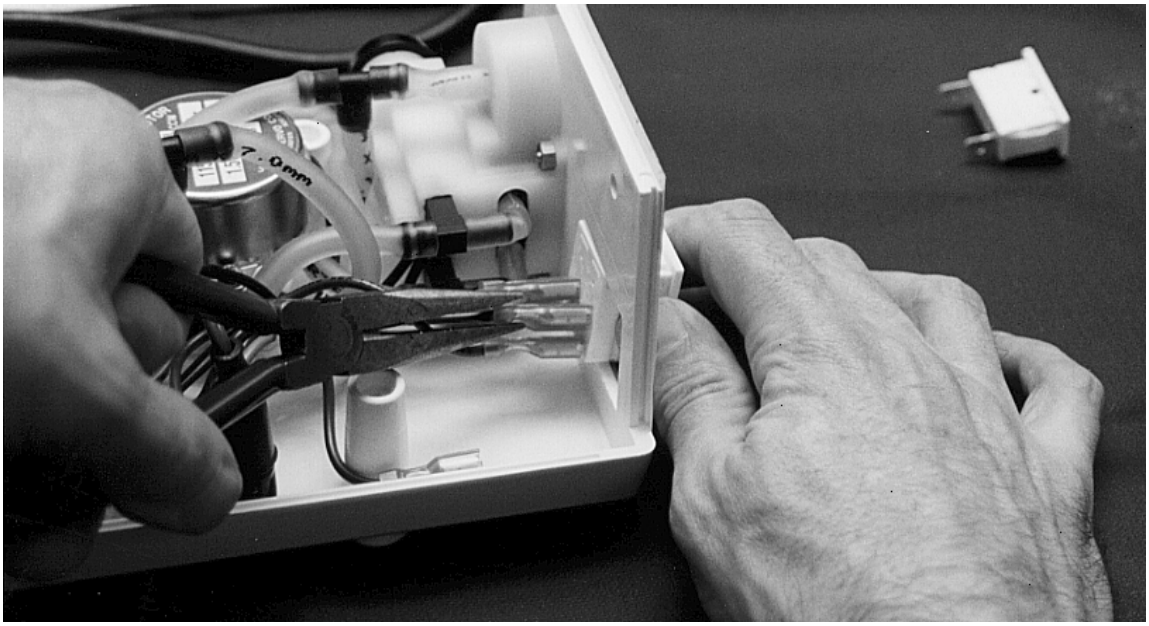
To remove the faulty audible alarm, pry it OFF. If this is difficult, leave it in place and cut OFF the connections close to the body.

Attach the new alarm to the case in the correct position (or adjacent to the faulty unit) using a cyanoacrylate adhesive.

Reconnect the electrical wires as shown in the wiring diagram using the method described in paragraph 5.2.

## 5.4 Replacing the ON/OFF Switch

To remove the on/off switch, disconnect (pull OFF) the electrical connections, squeeze together the retaining flanges located at the top and bottom of the switch body and push the switch through the front panel.



To replace the switch, push in from the front ensuring the switch retaining flanges snap into position.

Reconnect the electrical connections as per the wiring diagram.

## 5.5 Replacing the Fuse Holder

Disconnect the fuse holder wires from the on/off switch and from the terminal block. Compress the retaining flanges on the fuse holder body and push the fuse holder out of the case.

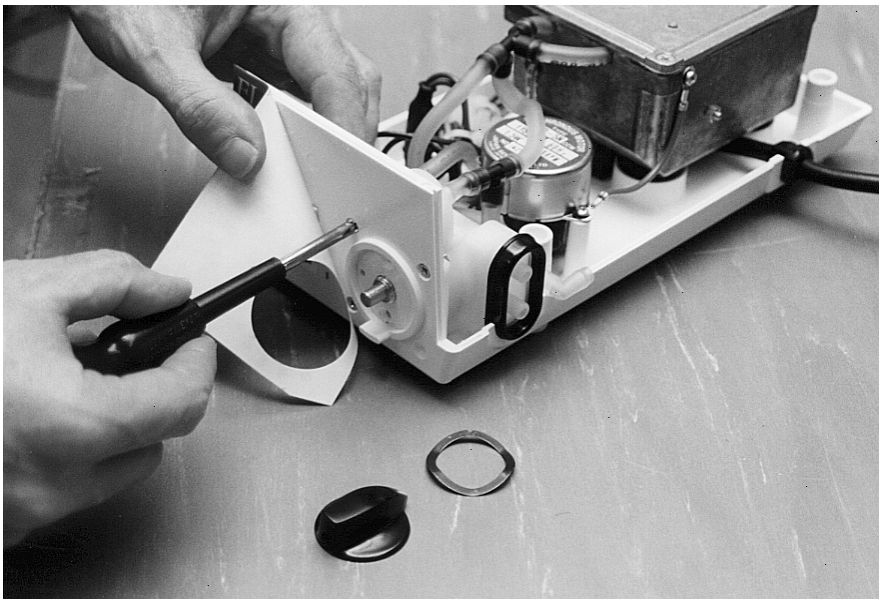
Replacement is the reverse of the above procedure.

## 5.6 Replacing the Pressure-Control Assembly

Remove face label as previously described. Remove the control knob. Unscrew and remove the 3 countersunk securing bolts and nuts.

Disconnect all tubing attached to the assembly including the outlet connector tube assemblies.

Carefully remove (cut OFF) the shrink sleeves from the pin/socket connectors in the wires from the alarm module to the pressure control. Disconnect the wires and remove the pressure-control assembly.



Install the new pressure-control assembly, reconnect tubes ensuring that there are no kinks and tubes are pushed fully onto their mounts. Secure the assembly with 3 countersunk bolts and nuts and carefully replace the face label.

Apply a small quantity of MIS047 cyanacrylate adhesive (Loctite 410) to the mating faces and reconnect the outlet connector tube assemblies.

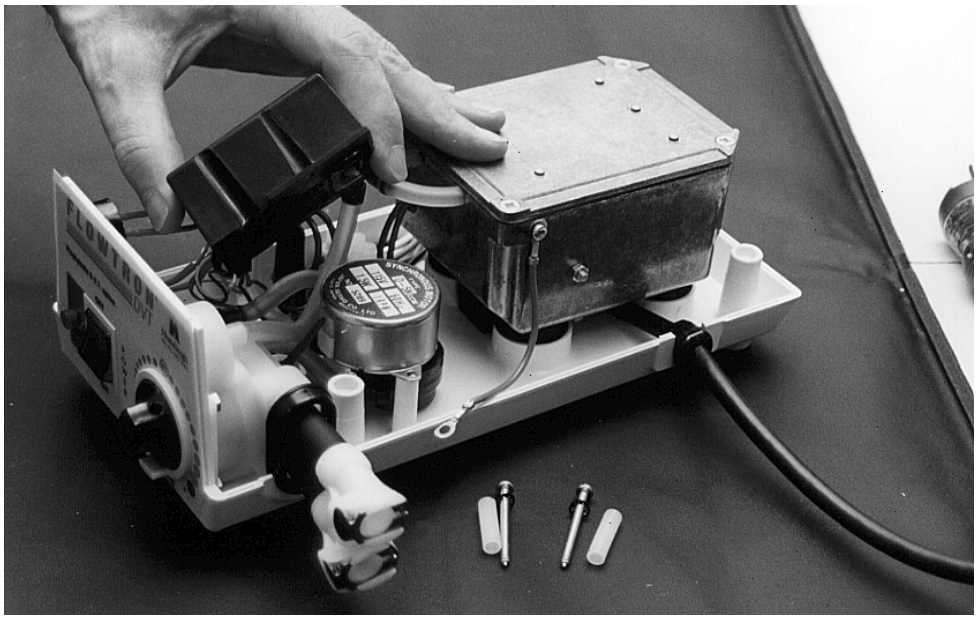
Put new shrink sleeves onto the wires from the alarm module and connect the wires to the control assembly by means of the pin/socket connectors. Slide the sleeves over the connectors and apply hot air to shrink in position.

Check air flow and calibrate as given in Section 4, Preventive Maintenance.

## 5.7 Replacing the Alarm Module Assembly

Remove the two screws and lock washers together with two support pillars which attach both the alarm module and the motor/gearbox assemblies.

Disconnect the blue and brown wires from the terminal block. Carefully remove (cut OFF) the shrink sleeves from the pin/socket connectors in the wires from the alarm module to the audible alarm (black+green), LED indicator (red+orange) and pressure control microswitch (white+purple). Remove the alarm module assembly.



Install the new alarm module assembly and attach with two screws, lock washers and support pillars which also attach the motor/gearbox assembly.

Connect the blue and brown wires to the terminal block as shown in the wiring diagram. Put new shrink sleeves onto the six remaining wires, Connect the wires by means of the pin/socket connectors as shown in the wiring diagram. Slide the sleeves over the connectors and apply hot air to shrink in position.

## 5.8 Replacing the Timer Motor/Gear Box Assembly

The timer motor is a non-repairable sealed unit and must be replaced if faulty. It is advisable to replace the complete assembly if faulty.

Remove the two screws and lock washers together with two support pillars which attach both the alarm module and the motor/gearbox assemblies. (Refer to paragraph 5.7). Lift OFF the alarm module and lay it to one side taking care not to strain or damage the electrical connections.

Disconnect all tubing attached to the assembly and disconnect the electrical wires from the terminal block.

Replacement is the reverse of the above. When reconnecting tubes to the assembly ensure that there are no kinks and tubes are pushed fully onto their mounts. Be careful not to strain or damage wires when re-attaching the alarm module.

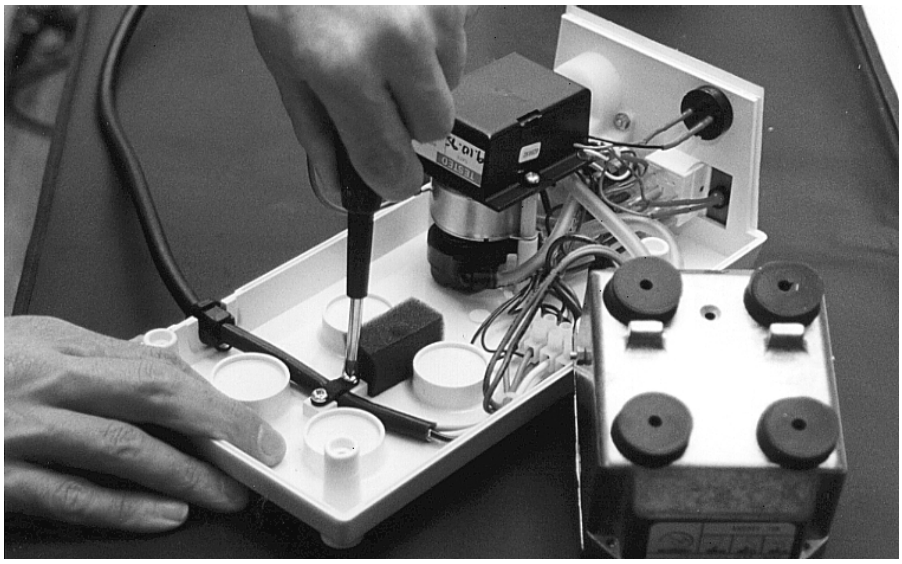
## 5.9 Replacing the Electric Cord

The electric cord is fitted with a molded non-rewireable plug. This assembly is not repairable and, if faulty, must be replaced.

**Do not attempt to replace the plug with a rewireable type as this will negate any warranty.**

**When an unserviceable power cord fitted with a non-rewireable plug is removed from the equipment, the cord and plug must be destroyed and disposed of safely. To avoid the danger of electric shock the plug must never be inserted in any power outlet.**

Remove the ground wire from the side of the compressor case and carefully lift and lay aside the compressor assembly. Remove the two self-tapping screws attaching the clamp plate to the bottom of the case. Disconnect the wires from the terminal block, remove and dispose of the unserviceable electrical cord.



Thread the new cable through the grommet in the case and connect to the terminal block as shown in the wiring diagram. Fit the clamp plate with two self-tapping screws, ensuring that the wires are not strained.

Reposition the compressor assembly.

## 5.10 Replacing the Compressor Air Inlet Sponge Filter

The filter is located underneath the compressor and is attached with adhesive to the base of the pump case. Carefully lift and lay aside the compressor assembly, first disconnecting the ground wire from the side of the compressor casing.

Pull OFF and discard the old filter.

Clean the relevant area of the base to remove all traces of old adhesive, using an alcohol based cleaning agent in accordance with the manufacturer's instructions.

Peel the protective film from the underside of the new filter and press the filter firmly on to the base, ensuring that it is correctly positioned to align with the air inlet hole in the compressor case.

Reposition the compressor assembly and reconnect the compressor ground wire.

## 5.11 Replacing the Compressor Assembly

Disconnect the compressor outlet tubes from the four way connecter. Disconnect the ground wire from the side of the compressor case. Disconnect the compressor wires from the terminal block.

Remove the compressor assembly from the case.

To replace the compressor assembly: ensure that the four compressor support rubbers are in good condition (replace if necessary) and install the compressor assembly, positioning the support rubbers carefully in the recesses in the bottom of the pump case.

Make sure the inlet filter sponge is correctly positioned.

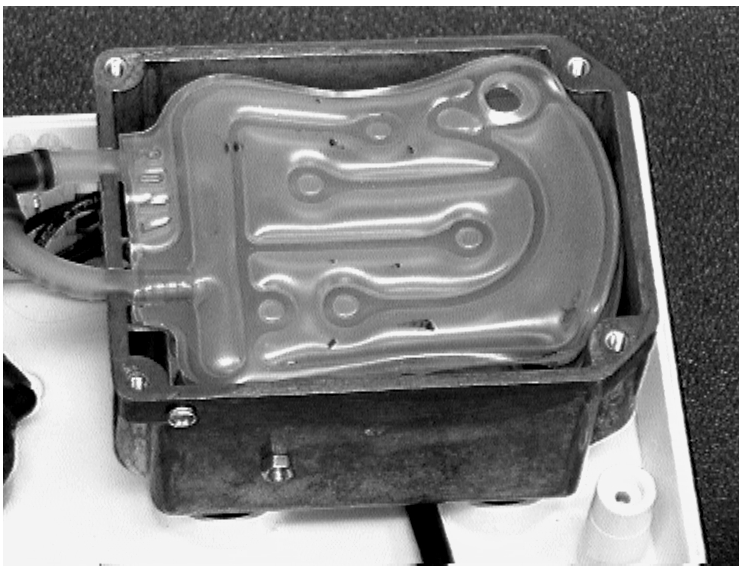
Connect the outlet tubes to the four way connector, ensuring there are no kinks. Connect the compressor wires as per the wiring diagram. Connect the ground wire to the side of the compressor case.

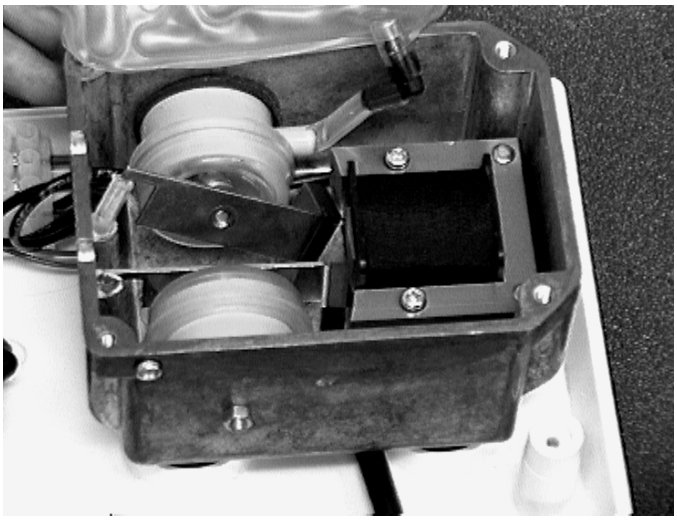
## 5.12 Replacing the Compressor Assembly Components

Unscrew and remove the 4 x M4 countersunk screws, remove the lid and gasket and place the lid to one side. Discard the gasket and replace with new item.

### 5.12.1 Silencer Bag Assembly

Disconnect the silencer bag outlet tubes from the four-way connector, disconnect silencer bag inlet tubes from the valve-body assemblies.





Replacement is the reverse of above procedure.

### 5.12.2 Bellows/Armature Blade Assemblies/Pivot Points

Unclip bellow from valve-body assembly and extract armature blade from pivot point using long nosed pliers.

If necessary, use a sharp pointed tool to remove the pivot points from the holes in the compressor case.

Replacement is the reverse of above procedure.

### 5.12.3 Valve Body Assembly

Unscrew and remove securing nuts on side of compressor casing.

Remove valve body from compressor body.

Replacement is reverse of above.

## 5.13 Test Equipment Requirements

The following list of test equipment will be required to perform the pneumatic and electrical tests on Huntleigh Pumps:

1. Flow and Pressure Unit
2. Multimeter
3. Portable Appliance Tester (Megger pat 2/2 recommended)
4. Psion®
5. ESD Service Kit

### 5.13.1 Pre-testing Checks

Before conducting any testing, make the following checks:

- Ensure the pressure/flow rigs are within the calibration dates and that the equipment is operating correctly.
- Check that all tubing and connectors – on the test unit – are tight and do not leak.
- Check that all test equipment is functional.
- Ensure Psion is correctly fitted to the main test rig (if applicable).
- Ensure that the pump units have been correctly pre-soaked – i.e. Run for the correct time – and that the outlet ports have been occluded.

## 5.14 Test Instructions and Specifications

After completing any repair work or servicing of the equipment, the following tests – extracted from ITP 349 – shall be performed.

### 5.14.1 Electrical Safety Checks

> WARNING
>
> Danger of electric shock. During the following tests live terminals and conductors will be exposed.

#### 5.14.1.1 *Earth bond test*

Check the integrity of the bond between the ground pin on the cord plug, and grounded dead metal parts in the pump.

Use the multimeter – or the portable appliance tester – to measure the bond resistance which should be no more than 0.2 Ω.

#### 5.14.1.2 *Leakage current test*

Measure the risk currents in accordance with the AAMI American National Standard 'Safe Current Limits for Electromedical Apparatus' or as specified in UL 544 or 2601-1.

## 5.15 Calibration Equipment Required

To test and calibrate the pump unit correctly, the following equipment is required:

- A sphygmomanometer or pressure gauge (0-160 mmHg)
- A flowmeter (0-10 liter/min)

### 5.15.1 Pressure, Flow and Calibration Checks

#### 5.15.1.1 *Pressure check*

Attach the pressure gauge/sphygmomanometer tube to the top outlet port and use the fingers, or suitable plugs, to close the other two outlets. Pressure range should be:

20 mmHg on minimum setting

60 mmHg on maximum setting

### 5.15.2 Flow control check

With the Flow and Pressure Unit connected to the pump outlet-port – which dispenses air – check the following pump criteria. Rotate the pump control-knob from min., to mid., to max., to adjust the flow control

#### 5.15.2.1 Flowtron DVT Pressure/Flow Specification Table

| Item | Pump | Voltage | Pressure Range mmHg | Free Flow Req'd L/min | Flow Req'd @ mmHg |
|---|---|---|---|---|---|
| F044 | Standard | 120 V | Up to 25 min. 60-70 max. | 5.0 | 2.5 @ 40 mmHg |

If adjustments are necessary, position the control knob at the set pressure as specified above.

NOTE: *When adjustments are to be made to a Series III pump unit, remember to re-seal the relief valve after setting the required pressure.*

#### 5.15.2.2 Alarm Checks

To check a unit which has a low-pressure warning light fitted, allow air to bleed from the outlet ports of the pump. This action simulates a leak, so the warning light should come ON, and the sounder should activate within 90 seconds to produce a continuous sound.. Cover the outlet port to verify that the warning light and sounder goes OFF.

#### 5.15.2.3 *Calibration*

If the pressure readings are incorrect then perform the following :

Remove the pressure control knob by loosening the side screw. Rotate the brass arbor until the pressure reads 40 mmHg. Carefully replace the pressure control knob, ensuring that the pointer is aligned with the '40' setting on the face label. Press the knob firmly into the recess, compressing the friction spring, then tighten the side screw.

Check the minimum and maximum settings and readjust if necessary.

Variation between ports must not be greater than 4 mmHg.

#### 5.15.2.4 *Flow check*

Attach the flowmeter tube to the port under test and check the flow measurements.

The flow readings should be:

5 liter/min. free flow

Difference in flow between ports should not be greater than 1 liter/minute.

## 5.16 Functional Check

Run the pump for a minimum of 1 hour and check calibration again. Adjust if required.

With the pump running carry out the following :

a) Turn the pressure to 30 mmHg and observe for 1 minute, the alarm must not activate.

b) Turn pressure to minimum, alarm must activate within 45 seconds and remain on continuously (continuous intermittent beeps).

c) Turn pressure back to 30 mmHg, alarm must cancel within 45 seconds.

**Flowtron DVT** Pump

| | |
|---|---|
| Model Number | AC500/2 |
| Voltage | 120 V ± 10% 60 Hz |
| Input power | 14 W |
| Fuse | F 500 mA 250 V |
| Size | 10.5 x 4.5 x 3.5 inches (26 x 12 x 10 cm) |
| Weight | 6.9 lbs. (2.75 kg) |
| Pressure range | 20 to 60 mmHg |
| Alarms | **Audible**<br>Continuous pressure failure - constant intermittent beep.<br>Low pressure failure - intermittent beep during cycle in which failure is occurring.<br>**Visual**<br>Red light |

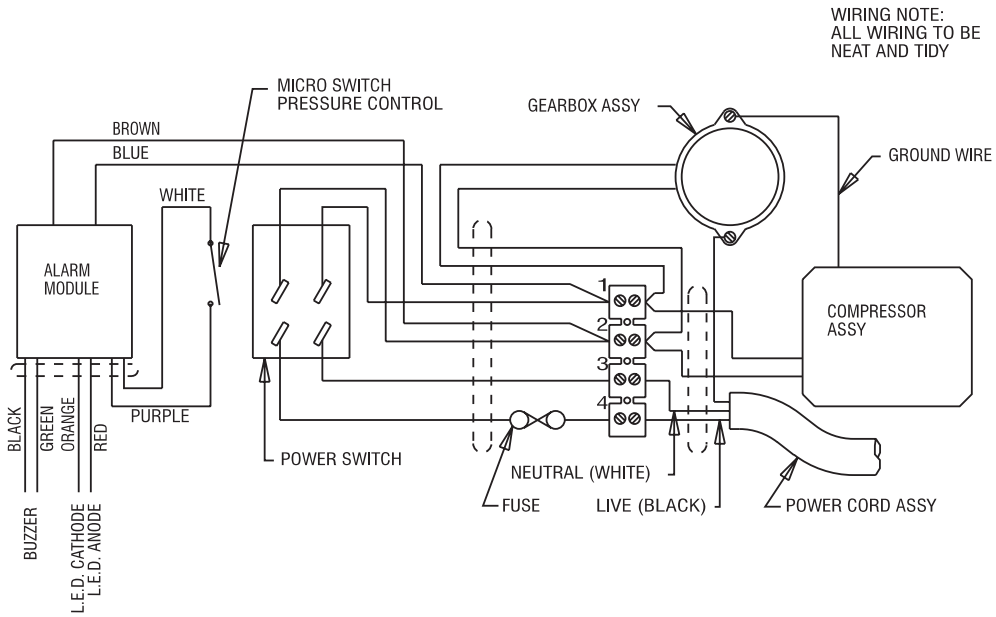
**Dual Tubeset**

| | |
|---|---|
| Model Number | DVT L550 USA |

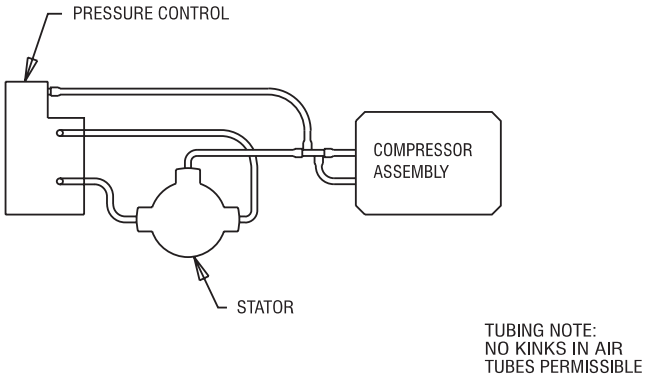
**Garments**

| | |
|---|---|
| As appropriate | **Flowtron DVT** range (Full details available on request) |

# WIRING DIAGRAMS




WIRING DIAGRAM




PNEUMATIC DIAGRAM

DVT

**Flowtron DVT (AC 500)**

**PARTS LIST**

**Flowtron DVT AC500-2 USA (120 V) Pump Unit**

| Part No. | Description | Qty per Pump |
|---|---|---|
| **BP445** | **Compressor Assembly (120 V 5 k-turns)** | **1** |
| BP447 | Coil Assembly (5 k-turns 0.16 Grey) | 1 |
| BP069 | Silencer Bag Assembly | 1 |
| BP214 | Right-hand Bellows Assembly | 1 |
| BP215 | Left-hand Bellows Assembly | 1 |
| BP181 | Compressor Box (Series 2) | 1 |
| BP182 | Compressor Box Lid | 1 |
| BP032 | Compressor Gasket | 1 |
| BP554 | Valve Body (BLUE) | 2 |
| BP039 | Valve Body Washer | 4 |
| BP043 | Armature Pivot | 2 |
| 165303 | Grommet Leadthrough | 1 |
| BP028 | 'E' Stack | 1 |
| BP037 | Flap Valve | 4 |
| BP038 | Valve falp securing pad | 1 |
| SIL004 | 4-way tube mount | 1 |
| **BP375** | **Bottom Enclosure (White)** | **1** |
| BP411 | Power Cord Assy (3-core DVT) | 1 |
| NMB020 | 4-way Terminal Block | 1 |
| **BP528** | **Top Enclosure Assembly** | **1** |
| PAC008 | Flexi Handle | 1 |
| 247075 | Hang Strap Assembly | 1 |
| BP014 | Hang Strap Plate | 2 |
| BP203 | Fuse Holder Assembly - Snap Fit | 1 |
| BP399 | Piezo Buzzer Alarm Assembly | 1 |

| | | |
|---|---|---|
| BP403 | Pressure Control Assembly - DVT | 1 |
| BP512 | Outlet Connecter Tube Assembly | 2 |
| BP405 | Alarm Module Assembly - DVT | 1 |
| BP409 | Gearbox Assembly | 1 |
| SP057 | Tubeset Assembly (DVT L550 USA) | 1 |
| BP006 | Power ON/OFF Switch | 1 |
| BP131 | Hazard Warning Label | 1 |
| BP205 | Case Feet (Grey) | 4 |
| BP530 | Face Label (DVT 550 USA) | 1 |
| PRE004 | Control Knob | 1 |
| PRE012 | **Alphabed** Spring | 1 |
| BP384 | LED Mounting Assembly | 1 |
| BP027 | Compressor Support Rubber | 6 |
| BP044 | Inlet Filter | 1 |
| CAS011 | Fuse Link (500 mA) | 1 |
| BP400 | Heat Shrink Sleeving (Red) | 1 Pkt |
| PRE005 | 7/16" Brass Screw | 1 |
| PRE011 | Rivet (Semi-Tubular) | 1 |
| PRE013 | Friction Spring Washer | 1 |
| BP455 | Operating Instruction Manual | 1 |
| BP356 | Caution Label FDA | 1 |
| CAS070 | Warning Label | 1 |
| CAS029 | Strain Relief Bush | 1 |
| CAS029 | Nemko Strap | 1 |
| PKG161 | Pump Box | 1 |
| PKG162 | Pump Box Insert | 1 |